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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/022,297

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Koji Morita

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EXAMINER

LEWIS, MONICA

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/022,297	Applicant(s) MORITA ET AL.	
	Examiner Monica Lewis	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4,13-16,19-22,25,26 and 33-37 is/are pending in the application.
- 4a) Of the above claim(s) 33-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4,13-16,19-22,25 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed December 23, 2003.

Response to Arguments

2. Applicant's arguments with respect to claims 16, 19-22, 25, 26 and 33-37 have been considered but are moot in view of the new ground(s) of rejection.

Election/Restrictions

3. Newly submitted claims 33-37 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: a) they are directed to a method of manufacturing.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 33-37 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 16 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Iwasaki (Japanese Publication No. 06177178).

In regards to claim 16, Iwasaki discloses the following:

a) a substrate (1), a land (4) formed on the substrate, a semiconductor chip (11) mounted on the land, and a solder layer (15) joining the semiconductor chip with the land, the semiconductor chip having a shape generally defined by at least first and second corners positioned generally diagonally opposite to each other, the semiconductor chip having an area defined by the shape, the land having an area defined by an outer boundary, the area of the land greater than the area of the semiconductor chip, the outer boundary of the land defining at least first and second corner portions disposed in proximity to the first and second corners of the semiconductor chip, the outer boundary of the land further defining contiguous portions extending next to the corner portions, the outer boundary at the contiguous portions spaced apart from the semiconductor chip more than the outer boundary at the corner portions, the first and second corner portions of the land generally confining the first and second corners of the semiconductor chip therein, the area of the land generally expanding from the corners of the semiconductor chip such that the area of the land in the contiguous portions is greater than the area of the land in the first and second corner portions (For Example: See Figure 1).

In regards to claim 19, Iwasaki discloses the following:

a) the shape of the semiconductor chip is further defined by third and fourth corners positioned diagonally opposite each other and wherein the outer boundary of the land further defines third and fourth corner portions positioned proximate to the third and fourth corners of the semiconductor chip (For Example: See Figure 1).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claim 20 is rejected under 35 U.S.C. 103(a) as obvious over Iwasaki (Japanese Publication No. 06177178) in view of Ohuchi (U.S. Patent No. 6,181,003).

In regards to claim 20, Iwasaki discloses the following:

a) the semiconductor chip is generally configured as a rectangular shape (For Example: See Figure 1).

In regards to claim 20, Iwasaki fails to disclose the following:

a) at least a length of a shorter side of the rectangular shape is longer than approximately 2.5 millimeters.

However, Ohuchi discloses sides that are longer than 2.5 mm (For Example: See Column 5 Lines 12-14). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Iwasaki to include sides longer than 2.5 mm as disclosed in Ohuchi because it aids in improving reliability (For Example: See Abstract and Column 1 Lines 5-16)).

Additionally, since Iwasaki and Ohuchi are both from the same field of endeavor, the purpose disclosed by Ohuchi would have been recognized in the pertinent art of Iwasaki .

Finally, the applicant has not established the critical nature of the dimension of 2.5 millimeters. “The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range.” *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir.1990).

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8. Claim 21 is rejected under 35 U.S.C. 103(a) as obvious over Iwasaki (Japanese Publication No. 06177178) in view of Ueda (Japanese Publication No. 08-264674).

In regards to claim 21, Iwasaki fails to disclose the following:

a) land is generally configured as a rectangular shape except for the corner portions.

However, Ueda discloses a land that is generally configured as a rectangular shape except for the corner portions (For Example: See Figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Iwasaki to include a land that is generally configured as a rectangular shape except for the corner portions as disclosed in Ueda because it aids in keeping the chip from the substrate (For Example: See Abstract).

Additionally, since Iwasaki and Ueda are both from the same field of endeavor, the purpose disclosed by Ueda would have been recognized in the pertinent art of Iwasaki.

9. Claim 22 is rejected under 35 U.S.C. 103(a) as obvious over Iwasaki (Japanese Publication No. 06177178) in view of Tani (U.S. Patent No. 5,468,993).

In regards to claim 22, Iwasaki fails to disclose the following:

a) a round shape except for the corner portions.

However, Tani discloses a round shape pad (For Example: See Figure 1). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Iwasaki to include a round shape pad as disclosed in Tani because it aids in preventing short circuit (For Example: See Column 1 Lines 9-16).

Additionally, since Iwasaki and Tani are both from the same field of endeavor, the purpose disclosed by Tani would have been recognized in the pertinent art of Iwasaki.

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10. Claim 25 is rejected under 35 U.S.C. 103(a) as obvious over Iwasaki (Japanese Publication No. 06177178) in view of Yamanashi (Japanese Patent No. JP02000253570A).

In regards to claim 25, Iwasaki fails to disclose the following:

a) the semiconductor chip controls electric power.

However, Yamanashi discloses a chip that controls power (For Example: See Abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Iwasaki to include a chip that controls power as disclosed in Yamanashi because it aids in preventing damages to the motor controller (For Example: See Abstract).

Additionally, since Iwasaki and Yamanashi are both from the same field of endeavor, the purpose disclosed by Yamanashi would have been recognized in the pertinent art of Iwasaki.

11. Claim 26 is rejected under 35 U.S.C. 103(a) as obvious over Iwasaki (Japanese Publication No. 06177178).

In regards to claim 26, Iwasaki fails to disclose the following:

a) semiconductor chip is joined with the land in a reflow soldering method.

However, the limitation of "reflow soldering method" makes it a product by process claim. The MPEP § 2113, states, "Even though product -by[-] process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted).

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A "*product by process*" claim is directed to the product per se, no matter how actually made, *In re Hirao and Sato et al.*, 190 USPQ 15 at 17 (CCPA 1976) (footnote 3). See also *In re Brown and Saffer*, 173 USPQ 685 (CCPA 1972); *In re Luck and Gainer*, 177 USPQ 523 (CCPA 1973); *In re Fessmann*, 180 USPQ 324 (CCPA 1974); and *In re Marosi et al.*, 218 USPQ 289 (CAFC 1983) final product per se which must be determined in a "*product by, all of*" claim, and not the patentability of the process, and that an old or obvious product, whether claimed in "*product by process*" claims or not. Note that Applicant has the burden of proof in such cases, as the above caselaw makes clear.

Allowable Subject Matter

12. Claims 4 and 13-15 are allowed.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 571-272-1838.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722 for regular and after final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

ML
March 8, 2004


A handwritten signature in black ink, appearing to read 'Mary Wilczewski', is written over a horizontal line of small, repeating rectangular marks.

Mary Wilczewski
Primary Examiner